

Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of the claims in the application:

1. (Currently Amended) A proximity detector, comprising:

a magnetic-field-to-voltage transducer for providing a magnetic field signal indicative of an ambient magnetic field;

a peak detector responsive to said magnetic field signal for providing a tracking signal which substantially follows at least a portion of said magnetic field signal, wherein said peak detector comprises:

a first digital-to-analog converter for providing a first output signal having a first step size;

a second digital-to-analog converter for providing a second output signal having a second step size larger than said first step size; and

a summation circuit coupled to said first and said second digital-to-analog converters for providing said tracking signal as a sum of said first and said second output signals, wherein said tracking signal is controlled to include steps associated with the first step size when said magnetic field signal varies from said tracking signal by less than a predetermined amount and to include larger steps associated with the second step size when said magnetic field signal varies from said tracking signal by more than the predetermined amount.

2. (Currently Amended) The proximity detector of Claim 1, further including a too-far-behind comparator for providing a too-far-behind signal which changes state when said magnetic field signal varies from said tracking signal by a the predetermined amount, wherein said tracking signal is controlled in response to said too-far-behind signal to include steps associated with the first step size when the too-far-behind signal is in a first state and to include larger steps associated with the second step size when the too-far-behind signal is in a second state.

3. (Original) The proximity detector of Claim 2, wherein said peak detector further comprises:
a first counter for providing a first count signal to said first digital-to-analog converter;
and
a second counter for providing a second count signal to said second digital-to-analog converter.

4. (Previously Presented) The proximity detector of Claim 3, wherein in response to the first state of said too-far-behind signal said second counter is stepped in association with a terminal count of said first counter, and in response to the second state of said too-far-behind signal said second counter is also stepped.

5. (Original) The proximity detector of Claim 2, wherein said too-far-behind comparator is responsive to an offset signal that differs from said magnetic field signal by an offset amount.

6. (Currently Amended) The proximity detector of Claim 1, further including a POSCOMP comparator for providing a POSCOMP signal, which changes state when said magnetic field signal varies from said tracking signal by a second predetermined amount, wherein ~~at least one of said tracking signal or said magnetic field signal is forced towards the other one of said tracking signal or said magnetic field signal in response to changes in state of said POSCOMP signal.~~

7. (Currently Amended) The proximity detector of Claim 6, wherein said POSCOMP comparator is responsive to a threshold signal that differs from said tracking signal by the second predetermined amount.

8. (Original) The proximity detector of Claim 6, wherein said tracking signal is brought to substantially the same level as said magnetic field signal in response to changes in state of said POSCOMP signal.

9-19. (Canceled)